On page 52, line 15, after the sequence "ACCATCATCACATYGCTGC", please insert -- (SEQ ID NO:24) --.

On page 52, line 16, after the sequence "TTCCCCCCATTGAGCAAGATT", please insert -- (SEQ ID NO:25) --.

On page 52, line 17, after the sequence "TTATTTTTCCCTGCTTAACTGAAC", please insert -- (SEQ ID NO:26) --.

IN THE CLAIMS:

Please delete Claim 43.

Please amend the claims as follows:

4. **(Amended)** The isolated pathogenic *Leptospira* bacterium according to claim**[s]** 2 **[or 3]**, wherein said bacterium is capable of growing at temperatures in the range from about 13°C to about 37°C.

5. **(Amended)** The isolated pathogenic *Leptospira* bacterium according to **[any one of]** Claim**[s]** 1 **[to 4]**, wherein said bacterium is a pathogen which is capable of infecting a mammal selected from the group consisting of human **[or a]**, livestock animal **[or a]**, and companion animal **[selected from the list comprising pigs, bovines, sheep, goats, horses, deer, alpaca, dogs and cats]**.

9. **(Amended)** The isolated pathogenic *Leptospira* bacterium according to **[any one of]** Claim**[s]** 5 **[to 8]**, wherein said bacterium is capable of producing the symptoms of leptospirosis in a human or other animal which it infects.

10. **(Amended)** The isolated pathogenic *Leptospira* bacterium according to **[any one of]** Claim**[s]** 1 **[to 8]**, wherein said bacterium is capable of inducing reproductive disease.

15. **(Amended)** The isolated pathogenic *Leptospira* bacterium according to **[any one of]** Claim**[s]** 1 **[to 14]**, wherein said bacterium further contains nucleic acid which is at least about 80% identical to the nucleotide sequence **[set forth in any one]**selected from the group consisting of SEQ ID NOs: 1-2, **[or]** 4-7, **[or a homologue, analogue or derivative thereof comprising at least 15 contiguous nucleotides which are at least about 80% identical to the nucleotide sequence set forth in said SEQ ID NOs: or]**, and a complementary nucleotide sequence thereto.

16. **(Amended)** The isolated pathogenic *Leptospira* bacterium according to **[any one of]** Claim**[s]** 1 **[to 14]**, wherein said bacterium further comprises a rRNA gene sequence

selected from the group consisting of: a nucleotide sequence which is at least 80% identical to **[the nucleotide sequence 5'-TGTTGGA-3']**SEQ ID NO:4, **[or]** a nucleotide sequence at least 90% identical to **[the nucleotide sequence 5'-TTTGATA-3']**SEQ ID NO;5, **[or]** a homologue, analogue or derivative thereof, and **[or]**a complementary nucleotide sequence thereto.

17. **(Amended)** The isolated pathogenic *Leptospira* bacterium according to Claim 16, wherein the rRNA gene sequence comprises a nucleotide sequence which is at least 85% identical to the **[nucleotide sequence 5'-TGTTGGATCACAAGATTTGATA]**SEQ ID NO:7 or a homologue, analogue or derivative thereof or a complementary nucleotide sequence thereto.

18. **(Amended)** The isolated pathogenic *Leptospira* bacterium according to **[any one of]** Claim**[s]** 15 **[to 17]**, wherein the percentage identity is at least about 97%.

19. **(Amended)** The isolated pathogenic *Leptospira* bacterium according to **[any one of]** Claim**[s]** 1 **[to 18]**, having the characteristics of the microorganism deposited under AGAL Accession No. N95/69684 or which is serologically cross-reactive thereto.

21. **(Amended)** ~~The~~ A method for isolating the isolated pathogenic *Leptospira* bacterium according to **[any one of]** Claim**[s]** 1 **[to 20]**, said method comprising the steps of:

(i) collecting tissue from a human or other animal subject infected therewith;

(ii) **[homogenising]**homogenizing said tissue in a suitable **[homogenisation]**homogenization medium for a time and under conditions sufficient to release said bacterium from said tissue whilst maintaining the integrity of said bacterium; and

(iii) culturing the **[homogenised]**homogenized tissue in a suitable culture medium for a time and under conditions sufficient to allow said bacterium to grow.

23. **(Amended)** The method according to Claim**[s]** 21**[-22]**, wherein the culture medium is supplemented with 8-azaguanine or 5-fluorouracil.

24. **(Amended)** The method according to **[any one of]** Claim**[s]** 21 **[to 23]**, wherein the culture medium is supplemented with at least one antibiotic.

26. **(Amended)** The method according to **[any one of]** Claim**[s]** 21 **[to 25]**, wherein the culture conditions comprise growth in the temperature range from about 13°C to about 37°C.

27. **(Amended)** The method according to **[any one of]** Claim**[s]** 21 **[to 26]**, wherein the other animal subject is a livestock animal or a companion animal.

30. **(Amended)** The method according to any **[any one of]** Claim**[s]** 21 **[to 29]**, wherein the tissue is selected from the group consisting of: blood, serum, plasma, urine, cerebrospinal fluid, liver, lung **[or]**and tissue derived from the urogenital tract **[selected from the list comprising bladder, kidney, uterus or fallopian tube or testes]**.

32. **(Amended)** An antibody molecule which is capable of binding to the isolated *Leptospira* bacterium **[according to any one of Claims 1-20]**of Claim 1 or an antigen derived from said bacterium.

33. **(Amended)** The method according to Claim 32, **[further defined as]**wherein said antibody molecule is a polyclonal antibody molecule.

34. **(Amended)** A method of diagnosing the presence of the pathogenic *Leptospira* bacterium **[according to any one of Claims 1-20]**of Claim 1 in a biological sample derived from a human or other animal subject, said method comprising contacting said biological sample or a nucleic acid molecule derived therefrom with one or more isolated probes or primers comprising a nucleotide sequence set forth in any one of SEQ ID NOs: 2-7 or a homologue, analogue or derivative thereof or a complementary sequence thereto for a time and under conditions sufficient for hybrdisation to occur and then detecting said hybridisation using a detecting means.

38. **(Amended)** The method according to Claim 37, wherein the polymerase chain reaction employs at least one primer comprising a nucleotide sequence **[set forth in]**selected from the group consisting of: **[SEQ ID NOs: 2 or SEQ ID NOs: 3 or]**SEQ ID NO:2, SEQ ID NO:3, and a derivative thereof.

39. **(Amended)** The method according to Claim 37, wherein the polymerase chain reactions employs two primers comprising the nucleotide sequences set forth in SEQ ID NOs: 2 and 3 or a derivative of any one of said nucleotide sequences.

40. (Amended) The method according to **[any one of]** Claim**[s]** 37**[-39]**, comprising a nested PCR wherein:

(i) the first amplified gene sequence obtained from a first round of amplification is contacted with one or more second nucleic acid primers of at least about 15 nucleotides in length derived from the nucleotide sequence set forth in SEQ ID NO: 1 or a complementary sequence thereto capable of **[hybridising]** hybridizing at a position in said first amplified gene sequence which is internal to

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the position of the nucleic acid primer sequence(s) used to generate said first amplified gene sequence; and

(ii) copies of said first amplified gene sequence are amplified using PCR to produce a second amplified product comprising *Leptospira* serovar hurstbridge or serogroup Hurstbridge rRNA gene sequences.

41. **(Amended)** The method according to **[any one of]** Claim**[s]** 37**[-40]**, comprising the further step of sequencing the amplified nucleic acid molecule product.

42. **(Amended)** A method of diagnosing the presence of the pathogenic *Leptospira* bacterium **[according to any one of Claims 1-20]** of Claim 1 in a biological sample derived from a human or other animal subject, said method comprising contacting said biological sample with an antibody molecule that binds to said bacterium or an antigen thereof for a time and under conditions sufficient for an antibody antigen complex to occur and then detecting said complex using a detecting means.

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44. **(Amended)** The method according to Claim**[s]** 42 **[or 43]** comprising an immunoassay or serological assay.

45. **(Amended)** The method according to Claim 44, wherein the immunoassay or serological assay comprises MAT or ELISA.

46. **(Amended)** A method of diagnosing the presence of the pathogenic *Leptospira* bacterium **[according to any one of Claims 1-20]**of Claim 1 in a human or other animal subject, said method at least comprising the steps of culturing cells or tissue derived from said subject under selective culture conditions which are specific for said bacterium for a time and under conditions sufficient to allow said bacterium to grow.

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49. **(Amended)** The method according to Claim 48, wherein the antibiotic is selected from the **[list comprising]**group consisting of: rifamycin, macrolide polyene and quinoline or a derivative compound thereof.

50. **(Amended)** The method according to **[any one of Claims 34-49]**Claim 34, wherein the other animal subject is a livestock animal or a companion animal.

51. **(Amended)** The method according to Claim 50, wherein the livestock animal or companion animal is selected from the **[list comprising]**group consisting of: pigs, bovines, sheep, goats, horses, deer, alpaca, dogs and cats.

54. **(Amended)** The method according to **[any one of Claims 34-53]**Claim 34, wherein the biological sample comprises a sample selected from the group consisting of: a homogenate **[or],** tissue **[or],** cell extract **[or],** whole cells **[or],** tissues derived from serum, tissues derived from blood, tissues derived from urine, tissues derived from cerebrospinal fluid, tissues derived from liver, tissues derived from lung, tissues derived from bladder, tissues derived from kidney, tissues derived from uterus, tissues derived from fallopian tube **[or]**and tissues derived from testes.

55. **(Amended)** The method according to Claim 54, wherein the **[tissue is]** the biological sample comprises a sample selected from the group consisting of: a homogenate **[or],** tissue **[or],** cell extract **[or],** whole cells **[or],** tissues derived from serum, tissues derived from blood, tissues derived from urine **[or]**and tissues derived from kidney.

56. **(Amended)** A diagnostic kit for the detection of the pathogenic *Leptospira* bacterium **[according to any one of Claims 1-20]**of Claim 1 in a human or other animal subject or a biological sample derived therefrom, said kit at least comprising **[a first compartment which contains]** one or more immunogens derived from said pathogenic *Leptospira* bacterium and **[a second compartment which contains]** an antibody molecule that binds to said bacterium or an antigen thereof.

57. **(Amended)** A diagnostic kit for the detection of the pathogenic *Leptospira* bacterium **[according to any one of Claims 1-20]**of Claim 1 in a human or other animal subject or a biological sample derived therefrom, said kit at least comprising **[a first compartment which contains]** two noncomplementary nucleic acid primer molecules of at least about 15 nucleotides in length comprising a nucleotide sequence **[set forth in any one]**selected from the group consisting of: of SEQ ID NOs: 2-7 and **[a second compartment which contains]** a reaction buffer suitable for the performance of a nucleic acid hybridisation reaction or polymerase chain reaction.

58. **(Amended)** A composition which is capable of conferring protective immunity against the pathogenic *Leptospira* bacterium **[according to any one of Claims 1-20]**of Claim 1 in a human or animal subject, said composition comprising an attenuated form of said pathogenic *Leptospira* bacterium or one or more isolated or recombinant immunogens which are immunologically cross-reactive with a cellular component thereof and one or more pharmaceutically or veterinarially acceptable carriers, adjuvants and/or diluents.

60. **(Amended)** The composition according to Claim**[s]** 58 **[or 59]**, wherein the pathogenic *Leptospira* bacterium is present at a concentration of at least about 10^8 organism per unit dose.

62. **(Amended)** A composition which is capable of conferring protective immunity against the pathogenic *Leptospira* bacterium **[according to any one of Claims 1-20]**of Claim 1 in a human or animal subject, said composition comprising serum derived from a human or other animal which **[is infected with]**contains said pathogenic *Leptospira* bacterium or a derivative product of said serum, and one or more pharmaceutically or veterinarially acceptable carriers, adjuvants and/or diluents, wherein said serum or derivative comprises antibodies which are capable of binding to the pathogenic *Leptospira* bacterium or to one or more immunogens thereof.

64. **(Amended)** A method of prophylactic or therapeutic treatment of infection of a human or animal subject by a pathogenic *Leptospira* bacterium of serogroup Hurstbridge or serovar hurstbridge or serologically cross-reactive derivative thereof, said method comprising administration of the composition according to **[any one of Claims 58-63]**Claim 58 to said human or animal subject for a time and under conditions sufficient to induce an immune response in said subject.

66. **(Amended)** A method of prophylactic or therapeutic treatment of leptospirosis in a human or animal subject comprising administration of the composition according to **[any one of Claims 58-63]**Claim 58 to said subject for a time and under conditions sufficient for said subject to resist a subsequent challenge by a pathogenic *Leptospira* bacterium of serogroup Hurstbridge or serovar hurstbridge or a serologically cross-reactive derivative thereof.

67. **(Amended)** A method of prophylactic or therapeutic treatment of reproductive disease in a human or animal subject comprising administration of the composition **[any one of Claims 58-63]**Claim 58 to said subject for a time and under conditions sufficient for said subject to resist a challenge by a pathogenic *Leptospira* bacterium of serogroup Hurstbridge or serovar hurstbridge or a serologically cross-reaction derivative thereof.

68. **(Amended)** The method according to Claim 67, wherein the reproductive disease is associated with any symptom selected from the group consisting of: seasonal infertility, reduced farrowing, **[foetal]** fetal death *in utero* **[or]**, spontaneous abortion in the

infected subject **[or with]**, and increased weaning-to-mating period in the offspring of the infected subject.

69. **(Amended)** The method **[according to any one of Claims 64-68]**Claim 64, wherein the composition is administered by injection.

70. **(Amended)** The method according to **[any one of Claims 64-69]**Claim 64, wherein the subject being treated is a human.

71. **(Amended)** The method according to **[any one of Claims 64-69]**Claim 64, wherein the subject being treated is a livestock animal or a companion animal.

72. **(Amended)** The method according to Claim 71, wherein the livestock animal or companion animal is selected from the **[list comprising]**group consisting of: pigs, bovines, sheep, goats, horses, deer, alpaca, dogs and cats.

Please add the following claims:

75. The isolated pathogenic *Leptospira* bacterium according to Claim 5 wherein said livestock and companion animals are selected from the group consisting of: pigs, bovines, sheep, goats, horses, deer, alpaca, dogs and cats.

76. The method according to any Claim 30, wherein the tissue derived from the urogenital tract is selected from the group consisting of: bladder, kidney, uterus, fallopian tube and testes.

77. The method according to Claim 42, wherein the other animal subject is a livestock animal or a companion animal.

78. The method according to Claim 77, wherein the livestock animal or companion animal is selected from the group consisting of: pigs, bovines, sheep, goats, horses, deer, alpaca, dogs and cats.

79. The method according to Claim 78, wherein the livestock animal is a pig.

80. The method according to Claim 78, wherein the livestock animal is a bovine animal.

81. The method according to Claim 42, wherein the biological sample comprises a sample selected from the group consisting of: homogenate, tissue, cell extract, whole cells, tissues derived from serum, tissues derived from blood, tissues derived from urine, tissues derived from cerebrospinal fluid, tissues derived from liver, tissues derived from lung, tissues

derived from bladder, tissues derived from kidney, tissues derived from uterus, tissues derived from fallopian tube, and tissues derived from testes.

82. The method according to Claim 81, wherein the biological sample comprises a sample selected from the group consisting of: homogenate, tissue, cell extract, whole cells, tissues derived from serum, tissues derived from blood, tissues derived from urine, and tissues derived from kidney.

83. The method according to Claim 46, wherein the other animal subject is a livestock animal or a companion animal.

84. The method according to Claim 83, wherein the livestock animal or companion animal is selected from the group consisting of: pigs, bovines, sheep, goats, horses, deer, alpaca, dogs and cats.

85. The method according to Claim 84, wherein the livestock animal is a pig.

86. The method according to Claim 84, wherein the livestock animal is a bovine animal.

87. The method according to Claim 46, wherein the biological sample comprises a sample selected from the group consisting of: homogenate, tissue, cell extract, whole cells, tissues derived from serum, tissues derived from blood, tissues derived from urine, tissues derived from cerebrospinal fluid, tissues derived from liver, tissues derived from lung, tissues derived from bladder, tissues derived from kidney, tissues derived from uterus, tissues derived from fallopian tube, and tissues derived from testes.

88. The method according to Claim 87, wherein the biological sample comprises a sample selected from the group consisting of: homogenate, tissue, cell extract, whole cells, tissues derived from serum, tissues derived from blood, tissues derived from urine, and tissues derived from kidney.

89. A method of prophylactic or therapeutic treatment of infection of a human or animal subject by a pathogenic *Leptospira* bacterium of serogroup Hurstbridge or serovar hurstbridge or serologically cross-reactive derivative thereof, said method comprising administration of the composition according to Claim 62 to said human or animal subject for a time and under conditions sufficient to induce an immune response in said subject.

90. The method according to Claim 89, wherein the immune response is a humoral immune response.

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91. A method of prophylactic or therapeutic treatment of leptospirosis in a human or animal subject comprising administration of the composition according to Claim 62 to said subject for a time and under conditions sufficient for said subject to resist a subsequent challenge by a pathogenic *Leptospira* bacterium of serogroup Hurstbridge or serovar hurstbridge or a serologically cross-reactive derivative thereof.

92. A method of prophylactic or therapeutic treatment of reproductive disease in a human or animal subject comprising administration of the composition according to Claim 62 to said subject for a time and under conditions sufficient for said subject to resist a challenge by a pathogenic *Leptospira* bacterium of serogroup Hurstbridge or serovar hurstbridge or a serologically cross-reaction derivative thereof.

93. The method according to Claim 90, wherein the reproductive disease is associated with seasonal infertility, reduced farrowing, foetal death *in utero* or spontaneous abortion in the infected subject or with increased weaning-to-mating period in the offspring of the infected subject.

94. The method according to Claim 68, wherein the composition is administered by injection.

95. The method according to Claim 68, wherein the subject being treated is a human.

96. The method according to Claim 68, wherein the subject being treated is a livestock animal or a companion animal.

97. The method according to Claim 96, wherein the livestock animal or companion animal is selected from the group consisting of: pigs, bovines, sheep, goats, horses, deer, alpaca, dogs and cats.

98. The method according to Claim 97, wherein the livestock animal is a pig.

99. The method according to Claim 97, wherein the livestock animal or companion animal is a bovine animal.

100. The method according to Claim 67, wherein the composition is administered by injection.

101. The method according to Claim 67, wherein the subject being treated is a human.

102. The method according to Claim 67, wherein the subject being treated is a livestock animal or a companion animal.

103. The method according to Claim 102, wherein the livestock animal or companion animal is selected from the group consisting of: pigs, bovines, sheep, goats, horses, deer, alpaca, dogs and cats.

104. The method according to Claim 103, wherein the livestock animal is a pig.

105. The method according to Claim 103, wherein the livestock animal or companion animal is a bovine animal.

106. The method according to Claim 87, wherein the composition is administered by injection.

107. The method according to Claim 87, wherein the subject being treated is a human.

108. The method according to Claim 87, wherein the subject being treated is a livestock animal or a companion animal.

109. The method according to Claim 108, wherein the livestock animal or companion animal is selected from the group consisting of: pigs, bovines, sheep, goats, horses, deer, alpaca, dogs and cats.

110. The method according to Claim 109, wherein the livestock animal is a pig.

111. The method according to Claim 109, wherein the livestock animal or companion animal is a bovine animal.

112. The method according to Claim 89, wherein the composition is administered by injection.

113. The method according to Claim 89, wherein the subject being treated is a human.

114. The method according to Claim 89, wherein the subject being treated is a livestock animal or a companion animal.

115. The method according to Claim 114, wherein the livestock animal or companion animal is selected from the group consisting of: pigs, bovines, sheep, goats, horses, deer, alpaca, dogs and cats.

116. The method according to Claim 115, wherein the livestock animal is a pig.

117. The method according to Claim 115, wherein the livestock animal or companion animal is a bovine animal.

118. The method according to Claim 91, wherein the composition is administered by injection.

119. The method according to Claim 91, wherein the subject being treated is a human.